

and the mouldings, which are rightly enough placed when serving for impost, should hardly have been repeated where they support nothing. The windows are obviously not intended for the display of goods, being of narrow lights and far apart; but though we do not think that shop fronts, as generally contrived, are desirable additions in any work of architecture in which good effect is contemplated, a little increase of size in the windows, in a building of this nature, would be admissible. We believe a contrary opinion is not unfrequently maintained; but the use of large windows does not necessarily imply bad architecture, or there might be some reason to moderate our advocacy of the repeal of the window tax. The interior has the arrangement, which has now become common in establishments of this nature, being lighted from the top, the upper story forming a gallery round the opening. Mr. J. E. Grogan is the architect.

Messrs. Gregg's warehouse, near the back of the Branch Bank of England, is also worthy of examination, and its internal arrangements have been referred to, as presenting a model for this class of buildings. It has iron columns and girders, with brick arches; and, as a provision against fire, there is a cistern occupying the whole area at the top of the building, from which a pipe is carried down the staircase, having a canvas hose and mouth-piece at each landing. The cistern is lined with a composition of the nature of asphalt, termed "Parquet," which, we believe, was used at the theatre in Manchester, but in the present instance has not been quite efficient. The building contains many contrivances which might be advantageously consulted in arranging similar buildings, amongst which is an ingenious apparatus for shooting the pieces of calico from top to bottom of the building, or, by an arrangement of doors, from one floor to another.—Opposite Messrs. Gregg's warehouse we noticed a building in progress in the Gothic style, and which, we were informed, was also for a warehouse.—The addition to the Exchange is progressing rapidly, though not far advanced at the time of our visit. We believe a new front is intended towards St. Anne's-square, with a portico, the order being the same as that of the old building, Grecian Doric. Mr. Alexander Mills is the architect.—Mr. Cockerell's Branch Bank of England is no doubt known to our readers from illustrations, and we merely stop to mention it as one of those buildings, of which it is very difficult to give a proper representation. Its massive effect, and the character of its windows, appeared to us particularly suitable in reference to its purpose.—The new streets lately opened, one called John Dalton-street and the other Corporation-street, are more satisfactory to us than many new streets in the metropolis. In John Dalton-street is a good building by Messrs. Dickson and Breakspair; and Corporation-street, although with a little sameness, has some good buildings, whilst all are great advances upon what had been common previously. Red brick is the material employed, and all the windows have stone dressings.—Having heard much of a fountain that had recently been erected in Smithfield Market, we waded through mud and offal to look at it, although somewhat dubious about the result of the examination. At length we found "a fountain of living water," and "a lamp which gave light at night," but very different, we hope we may say, to what may be expected of the Caxton monument, of which so little has been heard lately. In the centre of a very dirty basin was a pedestal, ill-designed and clumsily carved, supporting a small Corinthian column, by way of post, and a large lamp. Water was projected by lions' heads, one on each side the pedestal, and—parodying the words of a poet—

"The sound
Aman'd the gazing rustics rang'd around;
And still they gaz'd, and still the wonder grew,
That such small heads should carry all it threw."

Altogether, the fountain is as bad as any we know of, and that, in England, is saying a great deal. The town-council should not procure a design for any work, even in this out-of-the-way part of the town, from any one but a competent architect.

At Cheetham's College, an interesting building, we hear that restorations have been going on, and also that the cathedral is being decorated. The latter building will require very

careful treatment, having been restored at different times by incompetent hands. In the choir much of the old work remains, and the carving of the stalls is of great richness.

Church architecture has changed its character in Manchester as much as in most places; and for some notices of what has been done there lately, as well as for other matters, we may again draw from our notes.

DOINGS IN BRISTOL.

A scheme has been submitted to and approved by the town-council, to effect the long-desired end of rendering Bristol a FREE PORT. The day which sees this accomplished should be set apart as a holiday by its denizens: it will be a fresh starting-point for this important city. A good spirit is evidently awakening here, and will produce important results. The Frome, heretofore a reservoir of putrid matter, which has annually killed at least a hundred persons, has been covered over (the measure confers honour on the present town-council) at an expense of 4,395*l*.

A new church and schoolroom are to be built on a part of the waste land on the Weir known as the Rope Walk. The town surveyor valued the land, which belongs to the corporation, at 500*l*., but the council, with a wise liberality, agreed to take for it 150*l*.

On another part of the same land, baths and washhouses are to be erected under the direction of Mr. Baly, the engineer of those in London, at the estimated cost of 6,500*l*. By the arrangement proposed, sufficient space is to be obtained in the building for the construction of sixty bath-rooms, sixty-four washing compartments, and thirty-two ironing compartments. The bath-rooms are placed in the front of the building. The entrances to the first-class men's and women's baths are as far apart from one another as possible, at the opposite ends of the front; and those of the second-class men's and women's baths are in the centre. Each bath-room is about 6 feet square, and contains a bath 5 feet 3 inches long, of an average width of 1 foot 9 inches, and 1 foot 11 inches deep. The baths are to be made of cast-iron enamelled.

It is much to be desired that an architect were associated with the engineer in this case, so that the building might be of a less tasteless character than that in London, of which we spoke some time ago. The usefulness of the beautiful is no less certain than the beauty of usefulness.

To Mr. King, Dr. Green, Mr. Visger, and others, the city is much indebted for their efforts in respect of the important movements of which we have spoken.

The Corporation Baths and Washhouses have been very successful. During the past month 7,917 persons bathed, and 7,572 dozens of clothes were washed. On striking a balance of the accounts for the last twelve months, it was found to be considerably in favour of the institution.

CONSTRUCTION OF THE LIGHTHOUSE AT THE PORT OF HAVANA.

IN the month of August, 1844, the foundation for a new lighthouse at the Moro Castle, to serve as a guide to vessels entering the port of Havana, was commenced by the Spanish Junta, and executed under the direction of the corps of engineers of the army. The journal of the Franklin Institute (Philadelphia), contains a translation of an account of it by a Spanish colonel of engineers, from which we condense the following particulars:—

The tower is composed of two parts; the first representing a column 79 feet high, 25 feet in diameter at the base, and 20 at the top. The cornice of this serves as the floor of a corridor with a circular parapet, inclosed by a grated railing of copper, which surrounds the upper, or second part, upon which the lantern is supported. The first, or lower part, is constructed of hewn stone; the wall being 7 feet thick at the base; vertical in the interior, and sloping on the outside, 30 inches in the whole height. The interior space of 11 feet in diameter serves for a circular staircase, the steps of which are four feet long, 7½ inches high, 19 inches broad at the wide end, and six

at the other, or immediately at the spindle, or central column of three feet in diameter, which extends up through the whole height. The stairway begins inside, at 38 inches in the clear from the door, in order to leave an open landing place; the steps being covered with slabs of marble 1½ inches in thickness, with a moulding which extends an inch beyond the step. The doorway in the lower part of the tower, which gives entrance to the stairway is four feet wide and eight feet high, with pilasters at the sides; and its cornice and frontispiece in the form of a circular arch.

The stairway is lighted and ventilated by three sets of windows, placed equi-distant from one another throughout the whole height. They are four feet high and two feet wide, and in six of them, the lower part of the niche, or recess in the wall, which forms the window, is level with the steps, and serves as a landing, or resting-place. Below the stairway, and at the level of the lower floor of the tower, is a spacious room, inclosed by a wooden railing, which is used as a place of deposit for oil, and the more heavy and bulky articles used about the lighthouse.

At the height of 63 feet 9 inches, the stairway which has been described terminates in an apartment called the attendant's room, 12 feet in diameter, and 12½ inches in height, covered by an arch two feet thick in the crown. This chamber, lined with marble, is intended for the two persons who have charge of the light during the night. It is furnished with windows and the requisite conveniences for containing a supply of lamps, funnels, wicks, oil, &c. &c., having a staircase of mahogany, with a balustrade attached to the wall. The breadth of this stairway is 24 inches; the steps are a foot high and eight inches broad in the middle; it leads, through an opening left in the arch, to the platform, or upper part of the lower edifice.

Upon this platform is erected a second structure, consisting of a circular wall of hewn stone, 2½ feet thick, 8 feet high, and 11 feet 7 inches in its interior diameter. The latter dimensions are determined by the base and diameter of the lantern, which, as has been before said, rests upon it. In this second part of the tower there is a door 6 feet high by 27 inches wide, to admit of egress to the platform, or corridor, above the cornice.

The total height of the tower is, therefore, 87 feet, which, added to the elevation of its base above the level of the sea, 65½ feet, and to the height of the light within the lantern, 5½ feet, will make the total elevation of the light, 158 feet; the horizontal tangent of which is 13½ marine miles.

The glass lantern, which incloses the light, rests upon the circular wall built above the cornice of the tower, and has the figure of a prism of sixteen sides. It is covered by a cupola of copper, with a chimney in its top to carry off the gases proceeding from the combustion; the whole being surmounted by a weathercock.

Data for determining the proper Thickness for the Wall of the Tower.—The most interesting and nice question which first presents itself, in considering the construction of a very high tower, is to determine the thickness which its walls ought to have in order to insure the necessary stability, and to resist successfully the forces which have a tendency to destroy it. This is a general principle in all kinds of edifices; but in high towers, the base of which bears a small proportion to their height, it is necessary to consider another element of destruction, more powerful and active than the force of gravitation; namely, the violence of the wind in those great hurricanes which are so frequent on sea-coasts, and particularly among the Antilles.

In the calculation of this force, as in all physico-mathematical questions, the data are, for the most part, derived from experiments, of the accuracy of which we cannot be precisely certain; but which have been found sufficiently worthy of confidence when applied to similar structures which have, for many years, resisted every kind of force; and in this case there is nothing more logical, or natural, than to take the result of these calculations as established data of comparison with reference to our own case.

The data upon which we should reckon in calculations of this kind, founded upon numerous experiments, are as follow:—First,

* The Spanish foot here used is equal to 12½ inches, and the vara, or yard, is 27½ inches.